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MINISTRY OF RAILWAYS

(Railway Board)

RESOLUTION

New Delhi, the 22nd July 1963

S.O.2003—In continuation of Notification No. E(AO)58AP1/2 dated 7th January, 1958, published in Part II, Section 3 of the Government of India Gazette Extraordinary dated the 7th January, 1958, the Government of India have received the Report submitted by the Commission of Inquiry under the chairmanship of Shri B. N. Nigam, I.C.S., a Judge of the Allahabad High Court on the causes of collision between No. 2 DU Down Passenger and No. 45 Up Delhi-Pathankot Janata Express at Mohri station of the Northern Railway on 1st January, 1958 and hereby publish it for general information. The Government have accepted the findings and after due consideration taken appropriate action on the various matters brought out in the Report.

PART I—GENERAL

The Commission was appointed by notification No. E(AO) 58 AP1/2 dated 7th January, 1958, issued by Government of India, Ministry of Railways (Railway Board). The notification reads :—

“WHEREAS the Central Government is of opinion that it is necessary to appoint a Commission of Inquiry for the purpose of making an inquiry into the causes of the collision between No. 2 DU/Down Passenger Train and 45 UP Delhi-Pathankot Janata Express at 4/17 hours on 1-1-1958 at Mohri Station on the Delhi-Ambala Section of the Northern Railway.

(399)

Now, therefore, in exercise of the powers conferred by Section 3 of the Commission of Inquiry Act 1952 (60 of 1952) the Central Government hereby appoints a Commission of Inquiry consisting of :—

- (i) Justice B. N. Nigam, I.C.S., a Judge of the Allahabad High Court—*Chairman*.
- (ii) Shri Feroze Gandhi, M.P.—*Member*.
- (iii) Shri J. N. Nanda, retired General Manager, of Ex.-Nizam State Railway—*Member*.

2. The said Commission shall—

- (i) make an enquiry into the causes of the said accident and for that purpose take such evidence as may be necessary.
- (ii) state its findings as to causes of the said accident and as to the person or persons if any, responsible therefor; and
- (iii) suggest safeguards against similar accidents in future.

3. The said Commission shall submit its report to the Central Government within a period of one month from the date on which it commences its inquiry."

2. The Commission met for a preliminary meeting at Delhi on January 23 and 24, 1958, and held discussions about the venue of the inquiry and other matters. A notice was issued by the Commission and published in newspapers inviting all individuals and representatives of sections of the public, who wished to take part in the inquiry or to give evidence before the Commission to send their names and statement of the case to the Secretary. The Commission has also considered names and statements of case received after the expiry of that date. The Commission intended to start the inquiry at Ambala on 28th January, 1958, but it was represented by Shri Sadhu Ram, Driver of the 45 Up Janata Express that he wanted to be represented by a counsel, who would not be available on that date. The Commission acceded to his request for an adjournment and commenced the enquiry on February 3, 1958.

Study of Model and Experiments

3. The Railway Administration had prepared a model illustrating the system of working of trains at Mohri Station and the signalling and interlocking devices. The Commission studied the railway operations involved in the reception and despatch of trains at Mohri by witnessing the working of the model and decided upon various experiments to be carried out at site. The Commission spent a few days in studying the evidence recorded by the Government Inspector of Railways.

4. On the first day the Commission carried out an inspection of the site of the accident and also certain experiments as to braking power, visibility,

operation of points, interlocking and familiarised itself with the system of working of trains with special reference to the lay-out of the station yard, in order to understand any natural difficulties in working in and around the area.

5. The recording of evidence commenced at Circuit House, Ambala Cantt., on 4th February, 1958. In all the Commission has examined 69 witnesses. In order to avoid recording unnecessary evidence the Commission has in respect of witnesses examined by it, in nearly all cases, taken on its record the statements of those witnesses recorded by the Government Inspector of Railways. The Commission has in addition invited certain other persons including Railway Officers to give evidence as to the conditions at the time of the accident or possible causes thereof.

Topography

6. The accident in question took place on 1-1-58 at about 4-16 A.M. at Mohri station. Mohri is a small station on the Delhi-Ambala Section between Ambala Cantt. (at a distance of $5\frac{1}{2}$ miles) and Shahabad Markanda (at a distance of $6\frac{1}{2}$ miles). The railway line in this locality runs through fairly flat and level country. At the station the line runs almost directly North-South. Approaching Mohri station from Shahabad Markanda side, the line rises 1 in 1000 for about a mile up to a point 3336 feet from the centre of Mohri station building. From that point all the way through to Mohri station and 3182 feet beyond the track is level. South of the station, there is a curve, which extends from a point 4962 feet to a point 3336 feet from the centre of the Mohri station. Otherwise in this length the line is straight throughout.

There is a 7×40 feet girder bridge, about a mile south of Mohri Station and it begins at telegraph post 115/17.

Description of Signals and Points

7. The signals and the points on the Delhi side are designated 'Up' signals and 'Up' points and those on the Ambala side 'Down' signals and 'Down' points. The reception of trains from Delhi side is controlled by 'Up' outer and the 'Up' home signals and those from Ambala side by 'Down' outer and 'Down' home signals. The trains from Delhi side are 'Up' trains and those from Ambala side are termed 'Down' trains.

8. The 'Up' outer signal at mile 116/4-5 should be visible from a distance of 2800 feet to a train approaching from Delhi side. According to observations made by the Commission, the 'Up' outer signal is visible from a distance of 2235 feet south of that signal. The 'Up' home signal should be visible from a point 3300 feet from the 'home' signal. In making observations on the spot, the Commission found that it is actually visible from a distance of 3315 feet. The distance between the outer and the home signals is 1935 feet. This means that both the outer and the home signals are visible 1365 feet before the outer signal.

Layout and Speed Restrictions

9. Mohri station is a class 'B' station. There is only one rail-level platform. There are two lines, i.e. the main line and the loop line. In practice, all trains

stopping at Mohri are taken on to the loop line, i.e. the line adjacent to the platform. Other trains, which do not stop at Mohri, run through on the main line. There is a restriction of speed. The speed on the main line is restricted to 30 miles per hour and the speed on the loop line is restricted to 10 miles per hour. On the 'Down' side there is one signal arm in the outer signal which serves both the main and the loop lines. The home signal has two arms—one for the loop and the other for the main line. There are no warning signals. Similar signals are placed on the Up-side. Between the platform and the home signals there is one starter signal for each line on either side.

Scheduled Timings.

10. The trains that were involved in the collision were 45 Up Delhi-Pathankot Janata Express and 2 DU Ambala-Delhi Passenger. As per time table, 2 DU is due to leave Ambala at 3.50 A.M. The Janata Express should leave Shahabad Markanda at 3.42 A.M. It should arrive at Mohri and should stop there to permit 2 DU to run through. The halt at Mohri is not a halt mentioned in the public time table. The Janata Express is quite often late and then the 2 DU stops at Mohri and the Janata Express is allowed to run through Mohri.

11. On the particular day, 1 Up was late. It reached Ambala Cantt. at 3.50 a.m. The departure of 2 DU from Ambala Cantt. was delayed. 2 DU should have arrived at Mohri at 4.08 A.M. but it actually reached there at 4.13 A.M. (This time of arrival of 2 DU at Mohri is contested by the learned counsel for the driver, Shri Sadhu Ram and fireman, Shri Ram Sunder. We will revert to this subsequently.) 2 DU was not permitted to run through as 45 Up Delhi-Pathankot Janata Express was running approximately 21 minutes late and left Shahabad Markanda at 4.03 or 4.04 A.M. The trains had to cross at Mohri. The Assistant Station Master obtained instructions from the Control at Delhi and was directed to receive 2 DU first, to detain it on the loop line and to let the Janata Express pass through, running on the main line.

12. The 2 DU Delhi-Ambala Passenger which arrived at Mohri at 4.13 A.M. was received on the loop line. At 4.16 A.M. the Janata Express arrived at Mohri and came on to the loop line. It collided head-on with 2 DU passenger, which was standing on that line.

Casualties

13. As a result of the collision, 36 persons died, 31 on the spot and 5 subsequently in the hospital; in addition 88 persons received hurts.

Damage

14. Considerable damage was caused to the two engines and some of the coaches of the two rakes. The front ends of the engines were partially telescoped and some of the engine parts bent, twisted and broken. The bodies of the first two coaches next to the engine of 45 Up were reduced to match-wood and their under-frames were bent and twisted. The third coach was damaged and derailed. The 4th, 5th, 9th and 10th coaches did not derail but received slight damage. The remaining three coaches did not suffer any damage.

15. The body of coach behind the engine of 2 DU was completely splintered and the following coach was so heavily damaged that it had to be condemned. As a result of the impact the 2 DU, which had its brakes on, was pushed back, the engine being pushed back 90 feet.

16. The track was damaged for a distance of 210 feet. Two rails were broken to pieces and ten rails were bent and twisted and 82 sleepers were crushed. The tongue rail and the inter-locking gear of trap point No. K. 3. had suffered damage.

17. 2 DU was worked by engine No. 7773—HPS/2. It had a load of 8 bogies plus a four-wheeler parcel van. Its total length was about 626 feet and the weight about 484 tons. 45 Up Janata Express was worked by engine No. 7639-WP. It had a load of 10 bogies. Its total length including the engine was 754 feet and the weight about 619 tons.

Working Rules

18. Briefly stated, for crossing two passenger trains, only one of which stops at this station, the usual practice at Mohri is that the train due to arrive first is received on the loop line and arrangement made for running through of the second train. For receiving a train on the loop line, according to the rules in force, the main line facing points on both the sides have to be set and locked for the loop line and two trap points on the loop line (one on either side of the station) have to be set in the closed position and locked. Unless this is done, the proper signals on one side of the railway station for the 'Up' or 'Down' train cannot be lowered for the reception of the train on the loop line. On the side opposite to that from which the train is coming, the trap point is to be locked in the closed position and the facing point set and locked for the loopline to prevent accident due to over-shooting by the coming train.

Working Rules for Running Through

19. For the purpose of passing the second train running through on the main line, after the first train has come to a halt on the loopline and the necessary line clear obtained from the adjoining station, the trap points on the loop line have to be set in the open position and locked. Then the facing points on the main line have to be set and locked for the main line. It is only then that the appropriate signals for the passage of the train can be lowered.

Case for Assistant Station Master

20. While the Commission has considered all possible causes of the accident and will give reasons for eliminating them, it would be well to state at this stage that the choice finally lies between two cases, one on behalf of the assistant station master and the other on behalf of the driver of the ill-fated Janata Express. The case of the assistant station master is that after reception of 2 DU, he was busy in obtaining the line clear for the Janata Express and when he had received the line clear token and before his pointsmen could lock

the traps on either side in the open position and set the facing points and look them for the main line and before he could give the direction to lower the signals for the passage of the Janata Express, that train in defiance of the signals ran into the station yard and came on to the loop line and collided with the standing train-2 DU Passenger.

Case for the Driver

21. The case for the driver on the other hand is that the Up outer and Up loop home signals were lowered for him. He did not realise that there was any danger till he came to the Up facing point, which is inside the Up home signal. When he saw the rake of 2 DU standing on the loop line, he jammed his brakes and did everything, he possibly could, but could not avoid the collision. According to him, the responsibility for the accident must rest on the station staff for lowering wrong signals.

PART II—OBJECTIONS

22. Before entering upon a discussion of the evidence, it is necessary to deal with certain general objections raised by the learned counsel for Shri Sadhu Ram and Shri Ram Sunder. The learned counsel contended that the Commission's terms of reference are ultra-vires the Constitution. It is suggested that this Commission could not have been appointed to investigate into the causes of the accident and to give a finding as to the person or persons who may be responsible for this accident. It is suggested that this is the proper function of the Criminal Courts and the appointment of this Commission infringes on the judicial functions of those Courts. It is not for this Commission to give a finding on this point. The matter should have been raised before the High Court or the Supreme Court of India. This was pointed out to Shri Anthony and he was asked to take steps, but he gave no indication of any intention to obtain a writ restraining this Commission either from holding this enquiry or from submitting its report. It is, therefore, not necessary for us to discuss the matter any further.

23. Another request made by Shri Anthony was that this Commission should not record its finding on this question. We see no occasion for delaying submitting our Report. The Commission has been appointed by the Government of India and its Report will be submitted to the Ministry of Railways. It is for that Ministry to decide whether the Report of this Commission on points which may be raised in any criminal proceedings should be kept confidential, so that the Criminal Court concerned may proceed without any embarrassment and without being unduly impressed by the findings of this Commission.

24. Shri Anthony, in the course of his arguments, urged that as the statements recorded before the Government Inspector of Railways have been put to the witnesses and have been brought on to the record of the evidence of this Commission, a considerable amount of inadmissible and hearsay evidence overburdens the Commission's record. His specific objection appears to be that

certain Railway Officers who did not observe facts themselves have stated that they were told by other persons who had reached earlier. Shri Anthony need have no misgivings. The Commission will carefully exclude all such evidence from its consideration when arriving at conclusions.

25. It has also been urged that the statements of Shri Ram Sunder and Shri Sadhu Ram recorded by the Government Inspector of Railways should not be considered as those statements were either illegally or improperly recorded. The Commission has not brought those statements on to its record. Shri Anthony's further objection is that though the statements of these persons recorded by the Government Inspector of Railways were not brought on to the record of this Commission's evidence, some questions were put to Shri Ram Sunder and Shri Sadhu Ram asking them if they had on any previous occasions made statements which slightly contradicted their present statements. It is suggested that putting of those questions, in effect, brings the statements before the Government Inspector of Railways on to the record of the evidence before the Commission. That is not a valid conclusion. The statements of these witnesses made before the Government Inspector of Railways have not been brought on to the record of the Commission and even the Government Inspector of Railways was not asked whether a certain statement was made before him by these two witnesses. The mere putting to these witnesses questions about their previous statements only gave them an opportunity of stating whether they had made that statement, and whether that statement was correct. These two persons were not even compelled to answer all questions. At the time the statements were recorded, Shri Anthony's objection was that these witnesses could not be examined and would not give a statement unless protection was afforded to them that the statements made by them would not be used against them in any subsequent enquiry or trial. Shri Anthony did not at that time suggest that these persons be examined on oath. Keeping in view the possibility of Shri Ram Sunder and Shri Sadhu Ram being called upon to answer criminal charges and in view of their unwillingness to make statements unless protection was given to them, the Commission did not consider it proper to record the statements of these two persons on oath. No objection was raised at that time by Shri Anthony. Subsequently, Shri Anthony wanted the statements of these persons to be recorded on oath. The intention apparently was that full weight may be attached to the statements of these witnesses. The Commission informed Shri Anthony that less weight will not be attached to the statements made by Shri Ram Sunder and Shri Sadhu Ram merely because they were not examined on oath. While assessing the evidence, the Commission will carefully adhere to its views and weight will be given to the statements of these two persons as if those statements have been made on oath.

26. Shri Anthony has also objected that Shri Brij Bihari Lal and Arjan Singh, who were examined by the Government Inspector of Railways and made statements which might be helpful to the case of Shri Ram Sunder and Shri Sadhu Ram, have been deliberately kept away from appearing before the Commission. Effort was made to bring these witnesses before the Commission and Shri B. B. Lal was actually summoned but neither of the witnesses were examined. That need cause no apprehension as the Commission proposes to take

into consideration the statements of Sarvashri B.B. Lal and Arjan Singh recorded by the Government Inspector of Railways when discussing the evidence examined before it so far as they are helpful to Shri Anthony's clients.

27. Before considering the evidence relevant for arriving at a conclusion as to the responsibility and the actual cause of the accident, it would be proper to discuss possible causes which might have caused the accident but which have no bearing so far as this particular accident is concerned.

Sabotage

28. In the particular case before us, there is no evidence of any damage or interference indicating that any saboteur may have been at work. Major Naurang Singh Bains, Asstt. Inspector General, Government Railway Police Ambala Cantt. has stated "I have thoroughly investigated this case and there is no evidence to indicate that it was an act of sabotage". In the evidence before us, there is no suggestion that the accident was caused by any sabotage. That cause may, therefore, be excluded.

Weather

29. The evidence of Sarvashri Santoo, P. C. Gupta, Sham Lal, Chela Ram, Basant Singh, L. D. Puri, S. R. Paul, Ram Prakash, Ram Prasad, Ram Sunder, Bachan Singh, Sadhu Ram, Arjun Singh, Diwan Chand Gulati, Jagmohan Singh, Madan Mohan Anand, Karan Singh, Hardwari Lal and Deep Chand, indicates that it was a dark night. There was no moon and it was bitterly cold. It also indicates that there was slight mist but no fog. The sky was cloudy and there was some drizzling. We need refer only to the evidence of three witnesses—witness no. 21 Shri Ram Prasad, driver of I Up, which passed Mohri at about 3.41 A.M., stated that there was an amount of fog at Mohri but it was much less than that at Shahabad Markanda and the signals at Mohri were visible. Witness no. 40, Shri Ram Sundar stated: "The weather was good. There was no difficulty about seeing the signals." Witness no. 42 Shri Sadhu Ram, had stated: "The weather was good. The signals were clearly visible to me."

30. From this evidence it is clear that the weather did not create any conditions which might have caused the accident.

Visibility of Signals

31. The evidence of witness no. 2, Shri P. C. Gupta, witness no. 7, Shri L. D. Puri, witness no. 18, Shri S. R. Paul, and witness no. 21, Shri Ram Prasad, shows that the signals were clearly visible on that day. The first three of these could see the back lights of the signals clearly and Shri Ram Prasad, driver of I Up states that the signals were clearly visible. In addition, witness no. 40, Shri Ram Sundar, has stated that there was no difficulty about seeing signals. Witness no. 42, Shri Sadhu Ram has stated: "I saw the signal from the sighting line," and later "the weather was clear, the signals were clearly visible to me." It is, therefore, clear that the weather did not affect the visibility of signals on that date.

Braking Distance

32. Witness no. 60, Shri H. Q. Gordon, has stated: "If the track is not dry but there is moisture, then there will be some skidding of the wheels even after

the full binding of the brakes takes place and there may be a difference of up to 50 per cent more in the distance taken for bringing the train to a dead stop than when dry". Later, he stated: "I know that on a rainy night I have to be more alert but my idea of 50 per cent may not be correct. I am not an Engineer and cannot give the distance correctly. I have not even measured it either". No precise data have been made available to the Commission indicating the effect of moisture on rails on the braking distance. While 50 per cent is clearly a grossly exaggerated figure, it may be taken that there will be some variation up to 9-10 per cent in the distance required to bring the train to a dead stop but that, in our opinion, makes no real difference in this case, as the conditions were known to the driver. There is also evidence that Shri Sadhu Ram had actually no difficulty in stopping the train on that particular night.

33. Witness no. 7, Shri L. D. Puri, told the Government Inspector of Railways that he had 18 inches of vacuum in the gauge in his Brake Van and his train had no difficulty in stopping at the required places en route. Witness no. 40, Shri Ram Sundar states: "On the way from Delhi to Shahabad Markanda, we experienced no difficulty in stopping the train at any time on application of brakes." Shri Sadhu Ram states: "Up to Shahabad Markanda I did not experience any difficulty in stopping my train."

34. On the evidence, therefore, it is clear that the rain and moisture on the rails did not affect the conditions so adversely as to affect the safe working of the trains. On the evidence, therefore, we conclude that the weather conditions, i.e., the dew, moisture or rain, did not cause this accident either directly or indirectly.

Track

35. Defects in the track might have been another possible cause of the accident. But there is no evidence to indicate any such defect. Witness no. 9, Shri Mussadi Lal, has stated: "No complaints about the track in this area were received during the months of November and December, 1957." Witness no. 13, Shri Chunni Lal, had inspected the track from Ambala to Kurukshetra on 28th December, 1957, with the Assistant Engineer and found no defect. Witness no. 12, Shri Devi Dayal stated: "I inspected the track from Ambala up to Kurukshetra on 29th December, 1957. I did not detect any defect." Witness no. 2, Shri P. C. Gupta, stated that 1 Up passed through safely. After the accident, witness no. 10, Shri A. N. Sud, checked the gauge and cross level of the track up to 100 yards from the up facing point and found that they were correct.

36. Shri Chunni Lal also told the Government Inspector of Railways "Gauge and the cross levels on either side of the point (facing point) and up to the damaged rails were checked and found correct." The evidence thus indicates nothing wrong with the track having been discovered either in the inspections before the accident or by the driver of the train passing over the track immediately prior to the accident or even on inspection of undamaged track after the accident.

Signalling

37. The learned counsel for Shri Sadhu Ram and Shri Ram Sunder has laid special stress on the unsatisfactory condition of signalling and interlocking

and their operation. He has specially referred to the testimony of Shri Hans Raj Saini and Shri R. R. Mukerji in support of his allegations of signal failures at Mohri. Witness no. 25, Shri Hans Raj Saini, has given details of five cases of signal failure at Mohri. On 23rd September, 1956, the up outer signal could not be lowered as the signal chain plate was found broken. On 18th November, 1956, the down outer signal at Mohri could not be lowered as the down rod of the signal was broken. On 3rd January 1957, the up loop starter signal did not come off. The mistry, who attended, discovered no defect in the mechanism. On 5th January, 1957, the up outer signal at Mohri could not be lowered as the chain plate was found broken. On 3rd June 1957, the down outer signal was found defective, as the back-light of this signal was defective. Witness no. 27, Shri R. R. Mukerji, has stated that he twice inspected the signal and interlocking gear at Mohri and did not find any basic defects. Three defects occurred in the signal apparatus at Mohri. On 22nd October, 1957, the long down rod of the down loop home signal was found defective and the signal remained in the 'off' position. On 18th November 1957, the up loop line starter could not be lowered as the steel wire was broken. On 21st November, 1957, the outer signal could not be lowered as the gear was found disengaged. In addition, Shri Damodar Dayal's report mentions 2 more cases. On 3rd January, 1957, the back light of the down outer signal was reported to be defective though the mistry on check found no defect. On 30th November 1957, the Up loop starter could not be lowered due to wire being broken. The number of signal failures cannot be called excessive as these occurred in a period of sixteen months. Six of these failures were due to breakage of signal wire or signal chain plate or down rod of signal, two were due to defects in back lights, the ninth was due to gear becoming disengaged and, in the tenth instance, no defect was discovered. The nature of these failures does not indicate any basic defect in the signalling installation at Mohri or any neglect in the maintenance of signalling and interlocking.

38. Shri Anthony has drawn special attention to improper operation of signals. Shri E. Kirkman has stated that several times it happened that when a train was approaching, the outer signal was raised. He had had one or two experiences of the outer and the home signals both going up as his train was approaching. Witness no. 60, Shri H. Q. Gordon, has stated that on 18th or 19th January, 1958, at Dhirpur, though the outer signal went back to danger, the home signal, which had been lowered for the Janata, remained lowered and did not go back to danger till jerks were given to the signal wire. Witness no. 56, Shri Raj Kishore Traffic Inspector, has stated that in the middle of 1957, he was travelling on the engine of 61 Up and when the engine was barely a few yards from the outer signal, the outer signal was raised. When 1/3rd of the engine had passed the loop home signal, the home signal was also raised.

39. Witness no. 23, Shri Dhanpat Rai has mentioned a similar case which occurred on 1st September, 1957. The Divisional Operating Superintendent, Delhi in his report dated 14th February, 1958 to the Commission has reported only 2 cases—one of which has already been mentioned having been reported by Shri Raj Kishore. The second case occurred at Dhirpur on 23rd January, 1958 when the outer signal at Dhirpur was put back before the passage of 2 DU.

40. In case of any premature raising of the signals, the duty of the driver is clear that he must stop the train. Instances of premature raising of the signals are, however, irrelevant for our purposes, as there is no plea that any signal was prematurely raised in this case.

Drooping Signal

41. 15 cases of signal arm drooping, which occurred during 1957 on the Northern Railway, have also been brought to our notice. In all these cases, only one signal was at fault. There is not a single case in which both the home and the outer signal arms in the 'off' position did not go back to the 'on' position, when the levers were pushed back. Thus these would be cases of contradictory signals and they do not suggest that any defect in the signal gear may have kept both the signals in the 'off' position on the night of the accident.

42. It is true that possibly, in the beginning, the learned counsel appearing for the Railway adopted the position that there had been no failure of signalling instruments at Mohri. That is not so. Machines are subject to mechanical failures and break down just as much as the human body is heir to many ills and diseases. The question before the Commission is not whether there had been any defects in the signalling gear at Mohri or elsewhere during the year 1957 or in the period subsequent to the accident. The only question before the Commission is whether the defects have been so excessive and frequent as to warrant the suggestion of Shri Anthony that this section is 'notorious for signal failures'. Even more than that, the question for the consideration of this Commission is whether there was any signalling defect on the day the accident occurred.

43. It is admitted by witness no. 16, Shri Damodar Dayal, and witness no. 58, Shri L.C. Mohindra, that the outer signal can be lowered by pulling the wire. Witness no. 3, Shri Roshan Lal, has stated that there has been no case of conflicting signals at his station. Shri Anthony has brought on to the record a report by Shri Barkat Ram. On 9th February, 1958 he saw the up outer signal at Mohri in the 'ON' position though the home signal and the starter signals had been lowered. In case of conflicting signals, the driver must stop his train. Witness no. 18, Shri S. R. Paul, has stated that in the checks made by him, he did not notice a single case of conflicting signals. He also inspected the lever frame after the accident and told the Government Inspector of Railways: "I had, in the meantime, observed that all fixed signals at the station were in the 'On' position. The back-lights of the outer and home signals in both directions were also clearly visible". Witness no. 19, Shri Durga Prasad Puri, has stated that there is no unusual incidence of signal failure on the Kurukshetra—Ambala Section.

44. Witness no. 25, Shri Hans Raj Saini has stated that he used to inspect the signal and interlocking apparatus at Mohri at least once every month. He overhauled the interlocking frame at Mohri on 5th April, 1957 and tested the signal lever frame on that date and again on 1st July, 1957. The next overhaul is due in 1960. He did not come across any cases of basic defect in the signal and interlocking apparatus at Mohri. Though he mentioned five cases of signal

failures at Mohri (already detailed above), he was quite satisfied with the working and maintenance of the interlocking apparatus over this section. The working on Delhi—Ambala section compares favourably with his experience of the working on other sections. Witness no. 27, Shri R. R. Mukerji stated that in his inspections of the signal and interlocking gear at Mohri, he did not find any basic defect or basic deficiency. He is satisfied with the maintenance and performance of the signalling gear on this section.

45. We have already referred to the evidence of witness no. 16, Shri Damodar Dayal, witness no. 25, Shri H. R. Saini, and witness no. 27, Shri R. R. Mukerji. Witness no. 58, Shri L. C. Mohindra told the Government Inspector of Railways that he inspected and tested the interlocking system—the interlocking frame, the interlocking key box and the key transmitters on 4th January, 1958 and found them in correct condition.

46. As against this, Shri Arjan Singh stated in his statement to the Government Inspector of Railways that in his opinion the crack in the cover of the key lock of the trap appeared to be an old one. Witness no. 67, Cpl. Kulwant Singh has stated that he heard a railway worker tell Shri R. C. Srivastava, Signal Inspector, Rajpura that for the last 4 months, they had been reporting that it was cracked and no body had taken any action. We are unable to attach any weight to this evidence. The interlocking gear had been inspected a little before the accident and then no defect had been found. But even taking that the crack had been in existence since four months, it would not affect the working of the trap point, and the signal mechanism.

47. The evidence of witness no. 2, Shri P. C. Gupta, witness no. 5, Shri Chela Ram, witness no. 19, Shri D. P. Puri, witness no. 21, Shri Ram Prasad, witness no. 25, Shri H. R. Saini, witness no. 58, Shri L. C. Mohindra and witness no. 64, Shri M. A. Rao, indicates that there have been no cases of drooping signals. Shri M. A. Rao also saw the signals after the accident and he did not observe any drooping of the signals. Witness no. 2, Shri P. C. Gupta and witness no. 5, Shri Chela Ram saw the back lights of the signals. The signals had been put back after passage of 1 Up. Witness no. 7, Shri L. D. Puri, Guard of 45 Up stated that he saw the backlights of the home and the outer signals. This means that there were no drooping signals. Witness no. 18, Shri S. R. Paul stated that the backlights of the signals were clearly visible. Witness no. 21, Shri Ram Prasad, driver of 1 Up stated that there had been no case of drooping signals within the last 12 months. Witness no. 40, Shri Ram Sundar has stated that no signal was drooping on that day. Witness no. 42, Shri Sadhu Ram has also stated that no signal was drooping. This leads us to the conclusion that there was no history of drooping or contradictory signals at Mohri. The signalling and interlocking installation at Mohri had no basic defect and could not have caused this accident.

48. The up outer signal at Mohri is visible from a distance of 2,235 feet from that signal. The up home signal is visible from a point 3,300 feet south of that signal.

49. The evidence of witness no. 18, Shri S. R. Paul, witness no. 19, Shri Durga Prasad Puri, witness no. 25, Shri Hans Raj Saini, witness no. 45, Shri Himmat Singh, is to the effect that there have been no complaints in respect of visibility of signals and that officers are satisfied with the condition of the

visibility. Witness no. 61, Shri A. T. Kirkman has stated that in December, 1956, he reported that the up outer signal at Mohri was not visible from an adequate distance at night. Now the position is that he can see the outer signal only when he has crossed the sighting line and has gone 200 yards past it. The home signal is visible 20 to 30 yards after the outer signal becomes visible. The up outer Mohri signal is not visible from the sighting mark during night, but during the day it is visible from that line. From the evidence of this witness it would appear that both the outer and home signals at Mohri on the up side are visible from an adequate distance even at night. There is no complaint of poor visibility by witness no. 40, Shri Ram Sundar, and witness no. 42, Shri Sadhu Ram. It is, therefore, clear that both the up outer and up home signals are visible from an adequate distance. Thus any deficiency in the visibility of these signals was not the cause of this accident.

50. In the arguments before us Shri Anthony suggested that the up signals had been lowered for 45 Up Janata in the normal course. Subsequently the assistant station master had to receive 2 DU. He, therefore, put back these signals to danger but though the levers were pushed back the signals did not go back to danger. This suggestion was not put to any of the witnesses examined before the Commission or before the Government Inspector of Railways. It is not established that any such difficulty was experienced after the passage of 1 Up. There is no evidence to suggest that any signals were lowered for the Janata before the 2 DU was received at Mohri. Witness no. 2, Shri P. C. Gupta has stated that he saw the back lights of the signals. He could see the back lights only if the signal arms had in fact gone up. Witness no. 4, Shri Sham Lal, Pointsman working on Shahabad Markanda side stated before the Government Inspector of Railways that no signals were lowered on the Up side and he could see the back lights. Before the Commission also he stated that he saw the back lights of these signals at the time 2 DU had berthed. Witness no. 5, Shri Chela Ram has stated that the signals were put back to danger after the passage of 1 Up. He is also definite that no loop line signals were lowered for the Janata. The Guard of 45 Up Janta—witness no. 7, Shri Lachman Das Puri states that after the accident he noticed that both the outer and the home signals were at danger. Witness no. 20, Shri Ram Prakash told the Government Inspector of Railways that when 2 DU came to stop, reception signals for the Janata were not lowered. There is no evidence of any defects in the signalling gear having been removed immediately after the accident. There is no evidence that any wires were cut. Some of the witnesses suggest that the signals were put back to danger immediately after the accident. Thus there is no reason to suspect the existence of any conditions in which the up signals may have refused to go back to danger. The evidence clearly indicates that they were put back to danger after 1 Up had passed through. 2 DU was received after 1 Up. It, therefore, follows that the levers must have been pushed back to put the up signals at danger. There was no difficulty in pushing back these signals to danger either after the passage of 1 Up or immediately after the accident. We, therefore, in the absence of any evidence, find no sufficient reason for accepting the theory that though the levers had been pushed back to raise the signals on the up side in order to lower the signals on the down side for reception of 2 DU, the signals, in fact, did not go back to danger.

Condition of Engine and Coaching Stock

51. The engine of 45 Up Janata was examined by witness no. 35, Shri Mehar Chand at 9 P.M. on 31st December, 1957 and found in good working order. Shri Sadhu Ram, driver of that train also carried out his examination before starting the train and found no defect.

52. The rake of 45 Up Janata except four bogies was examined by Shri Jai Kishen, witness no. 38. He carried out tests in regard to vacuum, piston travel, brake blocks etc. He had three bogies detached, out of which two were due for periodical overhaul. The reformed rake was again examined and tested by witness no. 39, Shri Yash Pal Kaushal, Train Examiner, Delhi. There were no coaches due for periodical overhaul on the rake of 45 Up Janata as it left Delhi station.

53. The condition of the engine and of the coaches of 45 Up Janata was good when the train left Delhi.

Headlight

54. No one has urged that there was any difficulty with the headlight of the engine of 45 Up or that the track in front could not be seen for an adequate distance.

Speed

55. There may be difficulty in accurately assessing the speed of a train. But such difficulty has no bearing on the present accident. Witness no. 45, Shri Himmat Singh has stated that the Janata engine was fitted with a speedometer in working order. It, therefore, cannot be suggested that in the absence of a speedometer the driver was unable to judge the speed.

PHYSICAL FITNESS OF STAFF

(i) Assistant Station Master

56. Shri P. C. Gupta was Assistant Station Master on duty at Mohri from 11 p.m. on 31st December, 1957. There is no suggestion that he was not in proper health. He attended to his duties in respect of several trains—

1DU which ran through at 23.19 hours.

33 Up which ran through at 1.35 hours.

2Dn Mail which ran through at 2.27 hours.

34 Dn. which ran through at 3.07 hours.

1 Up which ran through at 3.38 hours.

46 Dn was also attended to on that night.

This is in addition to obtaining line clear for the two trains that were involved in the accident.

57. Shri P. C. Gupta must have contacted the control and the two stations on either side for each of the six trains. There is thus no ground for holding that he was not attending to his duties or was asleep. There is no suggestion that he was in any manner intoxicated. In the course of his arguments, Shri Anthony has urged that "it is a notorious fact that station masters and assistant station masters particularly on a morning such as this when it is bitterly cold and driz-

zling, allow their watermen and their pointsmen to do their work for them". For this conclusion Shri Anthony has relied on two testimonies. Shri Raj Kishore does mention a case of the signals being raised prematurely but, according to him, Shri Om Parkash, who was assistant station master on duty, was questioned by him and he kept quiet. Witness no. 23, Shri Dhanpat Rai stated that on 1st September, 1957 the outer signal was prematurely raised. He saw the assistant station master threatening and abusing the pointsman. He further stated that he questioned the assistant station master and received a reply. It does not appear to us that either of the two incidents support the conclusion desired by Shri Anthony that the assistant station masters do not attend to their duties on cold nights. In both the incidents mentioned by him, the assistant station master appears to have been on the platform and, in any case, on neither occasion was it raining or cold. There is no evidence of any inability or incapacity of the assistant station master to properly attend to his duties.

(ii) *Driver*

58. Shri Sadhu Ram admits that he had full rest before he came on duty on 45 Up.

59. The evidence of witness no. 7, Shri L. D. Puri, witness no. 37, Shri H. W. Farmer, and witness no. 43, Dr. B. S. Monga sufficiently indicates that Sadhu Ram is keen and efficient in the discharge of his duties, does not smoke or drink and was sober at the time of the accident. Witness no. 45, Shri Himmat Singh states that Shri Sadhu Ram qualified as a driver in 1933 and as a Passenger Driver 7 years ago. During this time, he has been punished only twice. He was censured in 1941, the reason is not evident. On 2nd July, 1956, six months stoppage of privileges was directed as he started 31 Up Frontier Mail without observing the guard's proceed signal. Thus there should have been no incapacity on the part of Shri Sadhu Ram to perform his duties properly. There is only one incapacity to which we make no reference at this stage. We will revert to the use of spectacles subsequently. We, however, add that tests indicate that there is no inherent defect with his vision if he uses proper glasses.

60. To sum up this part of the Report, we are of the opinion that this accident was not caused by sabotage, weather conditions, track defect, defects in signalling system or signalling gear or any defect in the engine, and the rake or even any incapacity on the part of the staff concerned unless that incapacity was induced by the use of spectacles by Shri Sadhu Ram.

PART III—DISCUSSION OF EVIDENCE

Signals lowered or not

61. Having considered the possible causes, which do not apply to the facts of the present case, we are, as stated earlier, left with two cases. The case for the assistant station master, plain and simple, is that he did not lower the signals for 45 Up Janata. The points had been set for the loop line and the trap had been closed on both the 'Up' side and 'down' side for reception of 2 DU from Ambala side. Before arrangements could be made for reception of 45 Up

Janata and at the time when the trap on the Up side had been locked in the open position but before the facing points could be set for the main line and prior to the signals being lowered for the incoming Janata, that train came through against signals, passed the facing points which were set for the loop line, trailed through the open locked trap point and collided with the stationary 2 DU.

62. On the other hand, the case for Shri Sadhu Ram and Shri Ram Sunder is that the signals were lowered for 45 Janata. They assert that the up outer and up loop home signals were lowered for them and the train entered the station on the authority of these signals.

It is these two cases which call for close analysis by us.

63. We will first consider the circumstantial evidence, for it is common experience that circumstances once established will give a positive indications as to the truth whereas witnesses examined orally may change their statements or make particular statements in order to help particular persons.

Time of Accident

64. In the notification appointing this Commission, the time of the accident is mentioned as 4-17 A.M. Witness no. 1, Shri Santoo, pointsman, Ambala side has stated that when he was going to the down facing point he heard the crash. This means that the accident occurred within 2—3 minutes of the arrival of 2 DU and supports the statement of Shri Sham Lal as to what he was actually doing when the Janata came in. Witness no. 2, Shri P. C. Gupta gives the time of accident as 4-16 A.M. Shri S. R. Paul, has stated that the Control told him at 4-17 A.M. of the accident. The statement of Shri Ram Prakash, witness no. 20, that the accident occurred 6—7 minutes after the arrival of 2 DU, is, in our opinion, not entitled to any credence. He now states that he had completed the repairs. He appears to have told the Government Inspector of Railways that he was actually carrying out repairs when the collision occurred. Shri Ratan Singh, witness no. 44, has stated that the accident occurred within two to three minutes of the arrival of 2 DU, but he now states that the accident occurred barely one minute after the arrival of that train. Relying mainly on the report by the Control Office, we conclude that the accident actually occurred at 4-16 A.M. and not at 4-17 A.M.

Arrival of 2 DU

65. Shri P. C. Gupta states that 2 DU arrived at Mohri at 4-13 A.M. Shri Santoo, witness no. 1 and Shri Sham Lal, witness no. 4, have stated that they had barely opened the traps and were going to the facing points when the accident occurred. Shri Basant Singh, witness no. 6, has stated that 2 DU arrived at Mohri at 4-13 A.M. Considerable stress has been laid on the contradiction between the time of departure from Ambala shown in the guard's journal and the statement of Shri Som Dev. But we find that the Control chart at Delhi indicates that five minutes were lost by 2 DU in travelling from Ambala to Mohri. The time of arrival, as mentioned in the chart at Delhi, is 4-13 A.M. Witness no. 17, Shri Jamiat Rai has also stated that 2 DU left at 3-55 hours after 1 Up had been received at Ambala at 3-50 hours. We are unable to attach any considerable weight to the difference as to the time of departure from

Ambala. The evidence as to the time of arrival at Mohri is consistent and we see no reason to doubt it. We have found no support for the suggestion that the time of arrival shown in the Mohri register has been altered. We accept that 2 DU arrived at Mohri at 4-13 hours.

66. Witness no. 2, Shri P. C. Gupta has stated that he obtained the line clear for Janata at 4-16 A.M. This statement is supported by witness no. 8, Shri Som Dev. There is no contradiction of this evidence. This is an important piece of evidence, inasmuch as it is very improbable that the assistant station master would think of passing the Janata through Mohri station before he had obtained the line clear from Ambala. This is also corroborated by the consistent evidence of witness no. 1, Shri Santoo, witness no. 2, Shri P. G. Gupta, witness no. 4, Shri Sham Lal, witness no. 7, Shri L. D. Puri and witness no. 40, Shri Ram Sundar to the effect that no torches were lighted for passing through the Janata Express. The evidence of these witnesses indicates that the preparations for receiving Janata were not complete. Things, which immediately follow the lowering of the outer and the home signals, had not been done and this does suggest the inference that the signals had not been lowered for the Janata.

67. To receive the Janata Express the Station Master had to:—

- (i) Satisfy himself of the complete arrival of 2 DU.
- (ii) Put the down outer and the down loop home signals back to danger.
- (iii) Extract key no. 28 from the signal lever and apply it in the key box in his office.
- (iv) Extract keys no. 33 and 35 from the key box and transmit them to the pointsmen.
- (v) Report arrival of 2 DU to Ambala Cantt. and obtain line clear for 45 Up on the token instrument.
- (vi) The pointsmen had to extract the key, walk up to the trap points (287 feet on the Ambala side and 290 feet on the Delhi side), apply them to the treble locks and set the traps in the open position by pulling the lever and then to lock them by turning key no. 35 and extracting key no. 53.
- (vii) The pointsmen had to walk from the trap back to the facing points near their goomities, apply key no. 53 in the treble lock, pull the lever and extract key no. 31.
- (viii) Each pointsman had then to transmit key no. 31 to the Station Master on duty.
- (ix) The Station Master had to extract both keys no. 31 from the transmitters, insert and turn them in the key box in his office and extract up home main key no. 25.
- (x) Key no. 25 had to be inserted and turned in the lock in the signal lever frame and then the up main home and the up outer signals could be taken off by pulling the relevant levers.

After that the Station Master would make arrangements for giving the line clear token to the train running through, arrange for lighting of two torches and arrange to lower up main line starter signal.

68. In the time table, 5 minutes are provided for all this work. We also know that 2 DU did not leave Ambala before 3.55 A.M., i.e., full 5 minutes after the arrival of 1 Up. The same process had to be undergone at Ambala Cantt. Witness no. 2, Shri P. C. Gupta has stated that he takes 5 minutes to arrange for crossing of trains. Witness no. 14, Shri Hari Singh, assistant station master, Shahabad Markanda has stated that in normal working there is no difficulty in crossing trains within 5 minutes time provided, but one has to move about quickly in order to arrange for crossing the trains during 5 minutes' time provided. As the accident occurred within 3 minutes of the arrival of 2 DU, it follows that full arrangements could not possibly have been made for passing through the Janata Express on the main line as had been directed by the Control at Delhi.

69. We carried out experiments on the spot and found that in the 3 minutes time intervening between the arrival of 2 DU and the accident, the Assistant Station Master could not have performed all the operations necessary for lowering signals for the Janata for its passage on the main line. These experiments also confirm that he could have performed all the operations which he says he actually did in order to be able to lower main line signals for the Janata, which process had not till then been completed.

70. Further experiments carried out by us clearly indicate that in the time intervening between the arrival of the 2 DU and the accident, the pointman on the Shahabad Markanda side could have performed only the operations which he states he did and he could not have completed all the operations necessary to enable him to transmit the key to the station master without which the signals could not have been lowered for the main line. These experiments also conclusively show that at the stage to which the pointman had reached, no signals for any line could have been lowered for the Janata Express.

Position of Facing Point

71. The evidence indicates that the facing points were set for the loop line. Witness no. 15, Shri R. C. Srivastava saw the facing point set for the main, but he made the inspection at 11.05 A.M. The other witnesses Shri L. D. Puri, Shri A. N. Sud, Shri Chunni Lal and Shri S. R. Paul have stated that the facing points were set for the loop and witness no. 15 Shri R. C. Srivastava, witness no. 16, Shri Damodar Dayal and witness no. 58, Shri L. C. Mohindra have stated that no damage was caused to the facing point. This corroborates the assertion that the facing points were set for the loop.

Trap Lock

72. Witness no. 4, Shri Sham Lal states that he gave key no. 53, to the assistant station master, who handed it over to the station master, Shri Roshan Lal. There is contradiction as to whether key no. 53 was in the station safe at the time it was taken over by Shri Roshan Lal or whether it was in Shri Roshan Lal's pocket and was handed over to the Assistant Traffic Superintendent, Shri S. R. Paul. But the Commission is unable to attach any considerable weight to this as the only question for its determination is whether key no. 53 was in the trap lock or outside it. It is conceded that key no. 53 could have been taken out of the trap lock even after the accident provided the trap

was locked in the open position. If the trap was in the locked closed position, key no. 53 could not have been taken out without locking the trap in the open position. So whether the key was taken out of the trap lock before or after the accident, makes no difference. If key no. 35 had been turned in the lock then the trap would be locked in the open position releasing key no. 53. The fact that key no. 53 was not in the trap leads to the conclusion that the trap point had been locked in the open position. As there is other evidence to indicate that the trap was locked in the open position, we have not considered it necessary to discuss the evidence on this point in detail.

Damage to Trap Points

73. The damage to the trap point has been described by several witnesses. We will refer only to the evidence of witnesses, who actually examined the damage. Witness no. 13, Shri Chunni Lal has stated that point K-3 was burst and the tongue rail was pushed towards the stock rail. The tongue rail was bent and twisted and a piece at the toe was broken. The cottor of the plug pin fixed inside the rod leading to the lock had sheared. The plug pin was entangled between the switch and the stock rails. The rod leading to the lever was bent and the cast iron bracket fixed on the post of the trap point indicator had broken and had fallen down along the rod revolving the disc. The toe of the tongue rail was about $\frac{3}{4}$ inch. open at that time. Witness no. 19, Shri D. P. Puri, has stated that before the tongue rail was clamped by him, there was a gap between the tongue rail and the stock rail of about half an inch. Witness no. 3, Shri Roshan Lal, and witness no. 7, Shri L. D. Puri saw the damage but have not given details. Witness no. 10, Shri A. N. Sud states that the trap had been burst. The trap indicator was showing $\frac{2}{3}$ rd red and the point portion of the tongue rail was broken to a length of 3 to $3\frac{1}{4}$ inches and the tongue rail was twisted to the extent of $1\frac{1}{4}$ inches. He also noticed a gap of $\frac{3}{8}$ inch between the tongue rail and the stock rail. The cottor on the goose neck rod had been sheared, at two places and the pin had also come out and fallen. The locking bar of the trap was also bent. The revolving rod of the trap indicator disc had fallen down. The pivot of the trap indicator had also broken. This witness reached the scene at 6 A.M.

74. Witness no. 18, Shri S. R. Paul also saw the damage. The other witnesses reached late. Shri M. A. Rao, Divisional Superintendent, witness no. 64, reached the site of the trap at 10.30 hrs. He found that the switch was kinked slightly and its head was tilted over somewhat towards the stock rail, so that the toe of its flange was lifted by about $\frac{3}{8}$ inch at its extremity. The tip of the switch had broken off, the size of the broken piece being $3\frac{1}{4}$ inches \times $\frac{3}{8}$ inch. There were also fresh marks on the inside of the head of the switch rail which appeared to have been caused by the flanges of the wheels rubbing hard against it. In the interlocking gear, he noticed that the swan neck connecting rod between the stretcher bar of the lock and the derailing switch was bent and the cottor pin fastening it to the switch rail had come off as it had been sheared through. The cottor pin and the five pieces of split cottor were lying on the ground. The two goose neck connecting rods leading from the switch to the trap point indicator and the hand-lever respectively were bent at the goose necks. The cast-iron bracket of the trap point indicator was broken and the connecting rod had come out of its socket.

75. Shri Anthony's objection is that the lock of the trap point was damaged since before and therefore no positive conclusion can be drawn from the damage to the trap point. The only evidence in support is that of witness no. 67, Corporal Kulwant Singh and Shri Arjan Singh. We can see no force in this contention as the evidence refers only to a crack in the cover of the lock and not to any defect in the lock itself. The lock had been functioning properly up to this accident and had been inspected by officers a little before the accident.

76. All this damage indicates that the trap had been burst and had been trailed through.

77. Witness no. 9 Shri Mussadi Lal has stated that as the trap was open, no signals could have been lowered for the Janata, that the damage could have been caused by a train coming only from Sahabad Markanda side. Any movement from the Mohri side would lead to a derailment and not to damage to the trap point. Witness no. 16, Shri Damodar Dayal has stated that with the trap open, the signals could not be lowered for the Janata Express. From the damage to the signalling gear alone, he is definite that the trap was locked open. We do not refer to the opinion of Shri Himmat Singh, as he did not actually see the damage. Witness no. 58, Shri L. C. Mohindra stated that there would have been no damage if the trap was in the open free position. Witness no. 63, Shri R. G. Bhatwadaker has stated that the damage would be caused by a train moving forward if the trap was in the open locked position. The kind of the damage, he saw, could not have been caused by the backward movement of the rake of the train involved in the collision. He has given reasons for his opinion and the reasons appear to us sound. Shearing of the split cottor could have been caused only by application of a force of 7·2 tons. The tip of the tongue rail could have been fractured only by applying a force of 16·5 tons. The assembly of the wheels and the axle being a rigid assembly could exert a force of about 900 tons. He has also stated that if the tongue rail is locked in the closed position, no damage could have been caused. In the free open position the backward movement of the rake would not cause this kind of damage. If it was in the free closed position, the damage caused by forward movement would be negligible or nil.

78. The damage to the signal gear actually observed in this case could be caused only as the bogie wheels of the engine would exert considerable pressure in order to accommodate themselves, between the rails and the $4\frac{1}{2}$ inches opening would have to be forcibly reduced to provide that accommodation. That pressure would be considerably more than that required for splitting the cottor pin or breaking off the tip of the switch rail.

79. From all this evidence, it is clear to the Commission that the trap must have been in the locked open position. If the trap was locked in the closed position, there will be no damage either by the forward or backward movement of the Janata. If the trap was unlocked and free, then whether it was half closed or fully open, the switch rail would be easily pushed back by the bogie wheels of engine of 45 Up Janata.

Conclusion from Damage to Trap Point

80. The damage to the trap inevitably leads to the conclusion that it was locked in the open position. We also know that the up facing points were set for

the loop line. The Commission unhesitatingly comes to the irresistible conclusion that the signals for the Janata could not have been lowered either for the up main line or for the up loop line.

Speed Restriction

81. There is a restriction of speed over the main line in the Mohri station yard. The speed is restricted to 30 miles per hour on the main line; over the loop line there is a restriction of 10 miles per hour.

82. Braking distance tests were carried out. The results are tabulated below:-

Test conducted by	Speed					
	20 MPH	25 MPH	30 MPH	40 MPH	41 MPH	45 MPH
Commission ..	465 feet on the straight 459 feet including the turn out.	611 feet	..	..	1,364 feet	..
Chief Mech. Engr. ..	408 feet	..	837 feet	1,227 feet	..	..
Divl. Mech. Engr. ..	544 feet	..	998 feet	1,674 feet	..	..
Graph prepared by Shri K. C. Lall ..	440 feet	..	745 feet	..	..	1,520 feet

83. On the basis of this information, the Commission feels that the fair conclusions as to braking distances would be—

Speed		Braking distance
20 MPH	.. .. *	540 feet.
25 MPH	.. ..	650 feet.
30 MPH	.. ..	900 feet.
40 MPH	.. ..	1400 feet.
45 MPH	.. ..	1600 feet.

84. These experiments were not carried out on wet rails. On wet rails the braking distance should be about 9 per cent more for a speed of 20 MPH and 2 per cent more for 45 MPH. As already stated the fact of the wet rails was within the information of the driver and he should have controlled his train accordingly when approaching the station.

2 DU Pushed back

85. The evidence of witness no. 1, Shri Santoo, witness no. 2, Shri P. C. Gupta and witness no. 6, Shri Basant Singh, indicates that when the 2 DU was standing at the platform its engine was just outside the platform on the south side and the tail lamp within a few feet of the fencing on the platform on the Ambala side.

86. The positions of the bogies and the engines were marked by witness no. 10, Shri A. N. Sud and witness no. 11, Shri A. N. Sharma. On the basis of this, from the place where the front bogie wheels of the engine of 2 DU were found and the place where the front part of the engine of 2 DU was, it is clear that the 2 DU was pushed back 90 feet. To this must be added a further distance of 5 feet to allow for the set back of the front bogie wheels of the engine of 2 DU from its buffers. It is thus clear that the front bogie wheels of 2 DU which had its brakes 'on' were pushed back 95 feet.

Janata not Pushed Back

87. There is no evidence of the rake of 45 Up Janata being pushed back as a result of the accident. Witness no. 28, Shri S. M. Ashri, witness no. 29, Shri Bachiter Singh, witness no. 32 Shri Joginder Singh and witness no. 33, Shri Khushal Singh have not mentioned any backward movement of the Janata. The pushing of the Janata as a result of the recoil is also not likely. The force of the impact was mainly spent in pushing back the engine and the rake of 2 DU. It would also be absorbed by the brakes of 45 Up Janata. We have also evidence to indicate that the engine of 45 Up Janata was derailed and the two front bogies were completely smashed. The rails underneath were distorted. Thus there would be no means of communicating the recoil, if any, to the other bogies of the Janata. The Commission, therefore, arrives at the conclusion that the rear bogies of the Janata were not pushed back. This conclusion would be important in discussing the suggestion whether the trap could have been damaged by any backward movement of the rake of 45 Up Janata.

Damage to the Trains

88. The front end of the smoke box of the engine of 45 Up was badly bashed in. Its front buffer beam and front engine drag casting, cow catcher, engine buffer lamps and head light were completely smashed. The engine frame, two piston rods, two side motion plates, left trailing side rod were bent. The bogie yoke and the engine stretcher plate were badly bent. The two engines were entangled as a result of the collision and both were derailed. The tender tank of the engine of Janata was badly damaged at the rear. The smoke box door and the head light of 2 DU engine were smashed. The tender drag box casting, both cylinders and front covers and the main frame on both the sides were damaged. The axles of the bogie wheels were bent. The buffer beams and the motion plate brackets were damaged. The cab roof of the engine was completely torn off.

89. In addition, two front bogies of 45 Up Janata were completely smashed. The two head stocks of the third bogie of 45 Up Janata, buffers and bolster springs were broken. The 4th and the 5th bogies had both ends head stock bent at buffers and diagonal bars bent. The 6th, 7th and 8th bogies received no damage, being HAL bogies. The 9th and the 10th bogies had each one head stock badly

bent. So far as the rake of 2 DU is concerned, it was pushed back and the first bogie was completely smashed; about half of the second bogie was completely damaged. The other bogies were not damaged. Comparatively the rake of 2 DU received less damage as the whole rake was pushed back some distance and the main force of the impact was taken by the engine and the first one and a half bogies which were smashed. It appears that the rear bogies of 45 Up Janata received damage only because they were surging forward.

Speed of Janata

90. The amount of the damage gives an indication of the speed. The 2 DU should have been visible to the driver of 45 Up from a distance of 1,148 feet as observed by the Commission in the experiments carried out by it. It is admitted that Shri Sadhu Ram saw the engine of 2 DU when he came on to the facing point, i.e. from a distance of approximately 650 feet. If the train was then travelling at 25 miles an hour, there could have been no damage; as the train could have been brought to a dead stop. From the amount of the damage, the Commission has been unable to avoid the irresistible conclusion that the speed of the Janata at the time of impact was in the order of 30 miles an hour and possibly even more. Witness no. 4, Shri Sham Lal has stated that the speed of the Janata was that of a run-through train. Shri Chela Ram, witness no. 5 says that the speed was pretty fast. Witness no. 7 Shri L. D. Puri has stated that at the time the Janata enters the yard, the speed was not more than 25 to 30 miles an hour and the speed at the time of collision was 25 to 30 miles an hour. Witness no. 40 Shri Ram Sunder has stated that the speed at the time of collision was 15 to 20 miles an hour. From the arguments advanced by Shri Anthony it is clear that the speed at the time of collision was not different from the speed on the facing points. Shri Sadhu Ram has not been able to explain why the train did not stop if the speed at the facing point was 20 miles an hour. Witness no. 45, Shri Himmat Singh has expressed the opinion that the speed at the time of collision was more than 10 miles an hour as there would be only minor damage to the engine, if the speed at the time of impact was 10 miles an hour. Witness no. 63, Shri K. C. Lall has given reasons for his opinion that the speed at the time of collision was about 40 miles an hour. He has stated that for the force needed to push back the engine of 2 DU a distance of 90 feet alone, the speed at the time of collision should have been 19.7 miles an hour. In fact this engine was pushed back 95 feet.

91. Considering the other damage and the momentum lost by the braking of 45 Janata and its ploughing through the formation, it follows that the speed at the time of the collision must have been much in excess of 20 miles an hour. This conclusion is also arrived at by witness no. 64, Shri M. A. Rao. Witness no. 66, Shri A. K. Gupta, who has experience of previous accidents, has given the opinion that the speed at the time of collision must have been 35 miles an hour. Taking these opinions into consideration and particularly the amount of force necessary to push the 2 DU back a distance of 95 feet and then making allowance for all the damage done to the engines, rakes and the permanent way, the Commission cannot avoid the inference that the speed of the Janata at the time of the impact must have been in the order of 30 miles an hour at least.

Driver's Spectacles

92. The evidence indicates that Shri Sadhu Ram uses spectacles. He has two sets, one for reading and the other for long distance. It is admitted that he cannot use the reading glasses for long distance work. His case is that he put on the reading glasses for doing writing work and had been promptly taking them off, and putting on his long distance glasses. This is contradicted by the statements of both the firemen, according to the whom, the driver had been putting on only one pair of glasses all the way from Delhi. The Commission does not come to any definite conclusion on this evidence. Shri Sadhu Ram did some writing work and it is possible he was putting on his reading glasses when approaching Mohri station, and was, therefore, unable to look at the signals himself, and depended on his firemen to give him information, as to whether they were down or not. There is some contradiction as to whether the driver had shouted "alright" to Shri Ram Sundar. The Commission does not attach any importance to that contradiction.

Suggested Hurry

93. It has been suggested that Shri Sadhu Ram was in a hurry to take the train to Ambala in order to catch the earlier train for Saharanpur. It is in evidence that he had directed his fireman to collect the tools soon after leaving Shahabad Markanda. The Commission is unable to agree that there are 100 tools in the driver's box or that 20 to 25 minutes would be required for collection of those tools. The Commission, however, does not attach any considerable importance to this suggested hurry on the part of Shri Sadhu Ram and does not consider the evidence on this point of paramount importance.

94. We have dealt with the evidence of circumstances and have held (i) that the time between the arrival of 2 DU and the time of the accident was too short for the lowering of the main line signals for the Janata, and (ii) that the damage done as a result of this accident clearly indicates that the speed at the time of the impact must have been in the order of 30 miles per hour, and (iii) that the damage to the trap clearly indicates that it must have been in open locked position at the time 45 Up Janata passed over it. The Commission is of the view that there was no possibility of any of the up signals having been lowered.

Oral Evidence

95. We proceed to discuss the oral evidence as to whether the signals were lowered or not.

96. Witness no. 28, Shri S. M. Ashri was in a bogie 2 or 3 bogies in front of bogie no. 4225 in which his Professor was. He saw the outer signal lowered when he was 50 to 60 yards from it and saw the Up-loop home signal green when he was 200 feet from that signal. After getting down, he looked back and saw that in one of the signal arms the light was white and in the other there was no light. The signal was 30 to 40 yards behind him. He made mention of this to the representative of the "Tej" daily. Witness no. 29, Bachitar Singh states that one window of his compartment was open. He was in a bogie 3 or 4 bogies in front of the Professor's bogie. Witness no. 31, K. S. Dhaliwal was standing and putting on trousers. He felt one jerk and then the train stopped.

Shri S. M. Ashri pointed out the signal to him. It was 20 feet behind him. He noticed one light and heard a noise and saw the signal going up 2-3 minutes after the accident. Shri S. M. Ashri told him that the train had stopped though the signal was down and they mentioned this fact to the Professor. Witness no. 30, Shri Ram Saran Dass stated that all the windows of the compartment were shut as it was really cold. Shri S. M. Ashri told them that the train had derailed and showed him the signal in the down position. The signal was half a bogie behind them. The witness did not see any light on the signals but could see one signal arm down. He did not see the signal being raised and did not hear any one say how the accident had occurred. Witness no. 31, Shri K. S. Dhaliwal was standing in the bath-room tying his turban and looking in the mirror. When Shri S. M. Ashri was asked the cause of the stopping of the train, he replied that he did not know. The signal was forty feet behind them and 2/3rd of the train was behind the signals. He does not remember any light on the signal arms but saw the signal arm in the murky darkness. Witness no. 32, Joginder Singh got down two or three minutes after the collision and saw the signal 30 feet away. One signal was down but he saw no light and he could not see the other signal. Witness no. 33, Professor Khushal Singh states that he was in bogie no. 4225. His students told him nothing as to the cause of the accident, though he heard them talking among themselves about the signal being down.

97. There are obvious defects in this evidence. There are contradictions as to whether the Professor was told that the signal was down, as to the distance the signal was from the place from where the students saw it, whether 2/3rd of the train was behind the signal and the last bogie of 45 Up was 5-6 bogies behind the home signal. The witnesses differ as to whether there was any enquiry by Shri S. M. Ashri if his companions had seen the signal down and they had told him that they had seen it being raised. There is also contradiction as to whether one of the windows of the compartment was open, where Shri K. S. Dhaliwal was and what he was doing, whether Shri S. M. Ashri pointed out the signal to his companions and whether there was any light in any of the signal arms. There is contradiction as to whether Shri S. M. Ashri told his companions as to why the train had stopped, i.e. whether it had derailed as mentioned by witness no. 30, Shri Ram Saran Dass or merely that it had stopped though the signals were down as stated by witness no. 29, Shri Bachitar Singh.

98. The night was dark and it is difficult to accept that any one could have, from the place where the students were, noticed a signal in the down position as the back light of the signal would be fully obstructed if the signal was in the down position. There are some ridiculous features about Shri S. M. Ashri's statement also. There is no reason why he should have been so keen to get down before Ambala. It is difficult to believe that he would switch on two fans and no one in the compartment would be able to put them off. It was a cold night but still he was unnecessarily leaning out of the door even though he had no covering. He had moved away from the seat near the right door as the fans were working but he again comes back near the same door and peeps out. He says that he could see a light below the signal and did not realise that collision had taken place. All these students got back into the compartment. Ordinarily such evidence is not entitled to any weight because of the numerous contradictions and absurdities. We cannot, however, lose sight of the fact that

Shri S. M. Ashri did tell the representative of the 'Tej' on 1-1-1958 that he had seen the signals in the lowered condition. He also appears to have made a similar statement to his Professor on 8-1-1958. The difficulty is that we know for definite that the whole of Janata was within the home signal and there is no light visible in a lowered home signal. Now these students saw a green signal from the place where they were is not explained. According to the Railway's case, there was not a single green signal within sight. All the Up signals were red in front and white at back and so were all the Down signals including starters.

99. Next we come to the three witnesses who were on the engine. Witness no. 40, Ram Sundar says that from a distance of one telegraph post he saw the outer signal in the down position and could also see the loop signal lowered. The other fireman, witness no. 41, Shri Bachan Singh did not see the signals at Mohri. Driver Shri Sadhu Ram, witness no. 42, saw both the signals lowered for him. As stated earlier, there is some contradiction between them whether the Driver had shouted 'alright' or not and from which place the home signal was seen.

100. There are a number of witnesses who depose about statements made by others. Witness no. 7, Shri L. D. Puri states that Shri Sadhu Ram told him that signals were down but he heard no talk as to how the accident had occurred. Witness no. 18, Shri S. R. Paul states that no one told him that signals were first lowered for the Janata and were then put back. Witness no. 30, Shri Ram Saran Dass heard no one say how the accident had occurred. Witness no. 43, Dr. B. S. Monga and witness no. 50, Dr. K. C. Das Gupta state that Shri Sadhu Ram made no statement to them. They did not question him either. Witness no. 52, Dr. M. D. Choudhury and witness no. 68, Dr. Harbans Singh state that on enquiry, Shri Sadhu Ram had told them that the signals had been lowered for him. A class IV employee whispered to Dr. Choudhury that the signals had been lowered and some passengers told him that the driver had acted very bravely in applying the brakes repeatedly. There are some contradictions between Dr. Harbans Singh and Dr. M. D. Choudhury but there may be disregarded. Before the Government Inspector of Railways, Shri B. B. Lal stated that in front of the Station Master's office, people were talking among themselves that the accident was caused by the pointsman having failed to set points correctly for the Janata. He stated that there was no talk of the signals having been off or on at that time. We have referred to this statement only because Shri Anthony wanted us to refer to it.

101. On the other hand evidence is there to indicate that the signals were not lowered. Witness no. 1, Santoo, witness no. 2, Shri P. C. Gupta, witness no. 4, Shri Sham Lal, witness no. 5, Shri Chela Ram, form the station staff. In addition, Shri Roshan Lal also states that the signal levers were not pulled over. Witness no. 6, Shri Basant Singh states that two minutes after the accident, he noticed that no signal levers in the signal lever frame were pulled over i.e. no signals were lowered at that time. Witness no. 20, Shri Ram Parkash states that when 2 DU stopped, no signals had been lowered for the Janata. We attach considerable importance to the statement of these two witnesses as they do not appear to be at all interested in either story. Their evidence clearly negatives the theory that the signals may have been lowered for the Janata before any directions were received to receive 2 DU and then though the signals

levers may have been pushed back, the signals arms may have remained in the down position. No evidence has been adduced indicating that both the up outer and up loop home were defective at the time of the accident or after it. Witness no. 6, Shri Basant Singh has stated that Shri P. C. Gupta told him that the driver had disobeyed the signals. He also stated that he did not hear any talk of the accident taking place due to the pointsman's fault. Witness no. 64, Shri M. A. Rao arrived a considerable time after the accident.

102. The evidence that the signals were lowered is not satisfactory. It is either the interested evidence of the driver and the fireman or the unimpressive evidence of the students and their Professor. There is no reason why Shri Basant Singh, and Shri Ram Prakash should not be stating the truth. In any case, we do not come to a final conclusion on the basis of oral evidence alone. We have the evidence of circumstances. As stated earlier, there is the time factor. There was not sufficient time after the arrival of 2 DU for signals to be lowered for the Janata for the main line. The damaged condition of the trap in the open locked position and the setting of the up facing point for the loop line precludes all possibilities of any up signal having been lowered for the Janata. That the signals may have remained in the off position even when the levers were pushed back has already been discussed by us and the evidence completely negatives the possibility. Witness no. 20, Shri Ram Prakash supports other witnesses on this point. We, therefore, come to the conclusion that no signals had been lowered for the Janata and that the driver clearly disobeyed signals when he came into the Mohri yard.

Possible Objections

103. Certain possibilities have been put before us by Shri Anthony and we would like to discuss them before we affirm our conclusion that the driver must have disobeyed the signals.

104. The first possibility is that the up signals were first lowered for the Janata Express and were subsequently raised in order to lower signals for the reception of 2 D. U. In that case the Station Master would have raised the signals on the up side and lowered those on the down side. This process would take at least 31 seconds. We have evidence that 2 DU did not have to stop outside the outer signal. This clearly indicates that at the time of raising the signals, the Janata would have been at a point where it must have been at least 3 minutes 31 seconds before the accident. Then even at an average speed of 20 MPH, it must have been far beyond the sighting line of the up outer signal. In that case any such mistake on the part of the assistant station master in first lowering the signals for the Janata would have no material bearing on the case before us.

105. The theory that this raising of the signals must have been done after the Janata had crossed the outer signal stands condemned by the time factor and merits no serious consideration. The time taken by the Janata to travel from the outer signal to the site of the accident is much less than the time which was taken by the station staff in locking the trap in the open position as to doing of which there can be no doubt in view of the damage to it. In any case the home signal must have been raised before the outer signal was put back to danger which is contradictory to the statement of the driver.

106. The second theory put forward for our consideration is that after the arrival of 2 DU, the assistant station master by mistake lowered the signals for the loop line for the Janata and then realising his mistake, raised them. Again we have ourselves seen that this process upto and including the locking of the trap in the open position would take over $2\frac{1}{2}$ minutes. The Janata could not have taken $2\frac{1}{2}$ minutes to travel from the outer signal to the station, particularly as we have the definite statement that the speed at the outer signal was 30 miles and the speed at the place of the accident was 15 to 20 miles. Even at 20 miles per hour, the Janata would take only about $1\frac{1}{4}$ minutes to cover the distance of 2,830 feet from the outer signal to the site of the accident. Therefore, on this theory also the signal must have been raised before the Janata reached the outer signal, which is not the story put forward by Shri Anthony.

107. The third theory is that after 2 DU had arrived at the station, signals were in fact lowered for the loop and remained lowered as the assistant station master failed to notice his mistake. It is extremely improbable that both the assistant station master and waterman Chela Ram would commit the mistake of lowering the signals for the loop line while all the time 2 DU was standing right in front of them. But even if we discard that improbability, the fact remains that the damage to the trap and the signal gear, possible only if the trap was in the open locked position, clearly shows that the signals were in fact not lowered.

108. The learned counsel has also urged that in accordance with the policy of not giving priority to delayed trains, the Janata would not be given priority over 2 DU. If the suggestion is that 2 DU would be run to Shahabad Markanda and the Janata would be stopped there as it had already become late, then obviously this was not done as we know that the Janata was not made to stop at Shahabad Markanda. If on the other hand the suggestion is that as the Janata was running late, it would be received on the loop line and made to halt and 2 DU would be run through as usual, that theory will also hold no water. In that case, the loop line would be used for the Janata and the main line kept for 2 DU but we definitely know that 2 DU arrived on the loop line without accident before the Janata came to Mohri.

109. The fifth theory, that of the possibility of the signal levers having been pulled back and the signals having remained in the down condition due to signalling defect has already been discussed by us and rejected. There is no evidence that there was any such defect and the statement of Shri Ram Prakash, witness no. 20, clearly shows that when 2 DU was berthed at the station, all the Up signals were in the 'on' position.

110. Shri Anthony has then urged that the damage to trap may have been caused in several various manners and not by being trailed through in the open locked position. We have ourselves been greatly impressed by the evidence of this trap being trailed through and damaged. We proceed to discuss Shri Anthony's objections and his explanations of the damage caused.

111. To explain the possibility of damage by the forward motion of the Janata, the first suggestion is that the trap may not have been in the fully closed position, even though the lever had been pushed back to lock the trap

point in the closed position. In that case the tolerance between the bogie wheels and the rails would be sufficient to let the switch rail of the trap remain undamaged where it was or the switch rail would be pushed back to house in the stock rail without any damage.

112. If on the other hand the trap was in the unlocked open position, then the pressure of the bogie wheels of the incoming Janata would push back the switch rail to the stock rail without causing any damage either to the switch rail or to the signal gear.

113. It has also been suggested that in that position, the switch rail might, under the pressure of running train, flap about, now close to the stock rail and then again away from it, and this flapping about might have caused the damage. There is no force in this contention either. The bogie wheels coming so quickly one after the other over the trap points would exert pressure to keep the switch rail constantly adhering to the stock rail.

Possibility of backward movement

114. We have also to consider whether the trap could have been damaged in any manner other than the forward motion of 45 Up Janata. Shri Anthony suggested that the damage to the trap might have been caused due to the backward movement of the Janata following the actual impact. We have no evidence of such movement. We have already stated that there would be no recoil, particularly as the momentum of the Janata would be lost by pushing 2 DU back and then ploughing through the formation. The displacement of the rails under the smashed bogies and the engines would veto any backward movement. Again the backward movement would not cause damage if the trap was in the closed position. If it was open, then the bogies would derail. This explanation cannot, therefore, be held valid.

115. Another explanation offered is that there may have been some lateral movement of the bogies standing over the tongue rail and this might have caused the damage. Witness no. 13, Shri Chunni Lal has stated that there was no damage to the bogie wheels. We have absolutely no evidence of any lateral movement. The lateral movement if any would be much greater in the case of bogies nearer the Janata engine. We find no damage to the track under any undamaged bogie near the engine. There is no possible reason for any lateral movement. Further if the trap was in the closed locked position, the tongue rail would be completely housed in the stock rail and would form one unit with it. Thus there would be no damage. If the tongue rail was in the open free position, it would be simply pushed back without causing any damage either to the tongue rail or the signalling mechanism. In the case of the third alternative of the trap being in the open locked position, the damage would be caused by the forward movement prior to the collision and there would be no necessity of any backward or lateral movement for causing the damage. In any case, we need not consider the third alternative as that would clearly imply that no signal could have been lowered and once we accept that the trap was in the open locked position, it follows that the statement that the signals were down, is incorrect.

Possibility of Tampering

116. The last explanation suggested by Shri Anthony is that the trap may have been tampered with after the accident. The suggestion is that the trap was in the closed locked position for the reception of the Janata. After the accident, the assistant station master realised that he was done for, unless he could fake evidence that the signals were up and in order to raise the signals, he attempted to lock the trap in the open locked position. In order to do that he got his men to move the switch rail. There are two possible positions. If there were no bogie wheels over the tip of the switch rail and the tongue rail was between the bogie wheels then there would be no damage by moving the tongue rail. In case one of the bogie wheels was exactly on top of the tip of the tongue rail, the evidence of Shri Bhatwadkar indicates that a pressure of 16·5 tons would have to be exerted in order to break the tip of the tongue rail. That pressure, we are certain, could not be exerted except by 75—100 persons. The suggestion that the assistant station master could have collected 75—100 persons in order to exert that pressure is so ridiculous as to call for no consideration. We are unable to conceive of any manner of concentrating such a pressure, exerted manually by so many persons, on one point. Even if it were possible to apply that pressure, the signal gear would give way first, being the weaker link and the tip of the switch rail would remain undamaged.

117. Reliance has been placed on the evidence of Corporal Kulwant Singh, witness no. 67, who reached the scene only at 11·45 A.M. If any tampering had to be done, it must have been done before the arrival of Shri S. R. Paul, Assistant Traffic Superintendent, Ambala or even within two or three minutes of the accident, as even the student witnesses have stated that signal was raised within two or three minutes of the accident.

118. We are certain that the loop signals could not have been lowered when the trap remained in the locked open position, and therefore no question of raising the signals arises. The evidence of Corporal Kulwant Singh does not help as if any tampering was done, it must have been done within 2-3 minutes of the accident.

119. None of the reasons suggested by Shri Anthony for holding that the trap could have been damaged otherwise than by the forward movement of 45 Up Janata when it was in the locked open position can possibly be correct. On the evidence we must hold that the trap was damaged because it was in the open locked position and therefore it necessarily follows that the signals could not have been lowered for the Janata.

120. We have discussed all the alternatives suggested by Shri Anthony and having rejected them we affirm our conclusion that the evidence clearly indicates that no signals were lowered for the Janata and that driver Shri Sadhu Ram brought in his train disobeying the signals which were adverse to him.

Excessive Speed

121. We have also recorded a conclusion that the speed at the time of the impact was in the order of 30 miles per hour. There is a restriction of 10 miles over the loop line. Driver Shri Sadhu Ram says in his statement that he saw that the loop line home signal was lowered for him. He had thus no valid

excuse for exceeding the speed of 10 miles when he entered the loop. We are also certain that even if the Janata was travelling at 20 miles, when entering the loop, the accident could have been avoided as the train could have been brought to a halt before it could reach the engine of 2 DU.

Excuses for excessive speed

122. It is suggested to us that it is necessary for drivers in order to maintain the prescribed time schedule to enter the loop at more than 10 miles per hour. Witness no. 22, Shri H. D. Kerr has stated that he has no difficulty in maintaining the time schedule. He has, however, stated that he would lose time by entering the loop at 10 miles per hour and has stated that drivers are called upon to explain more than one minute's delay. Witness no. 23, Shri Dhanpat Rai has stated that he enters the loop at a speed of not more than 10 miles per hour. Driver Sadhu Ram has also admitted that there is no difficulty in maintaining the time schedule. But he stated that if he reduces the speed to 10 miles per hour, he will not be able to maintain the time schedule. Witness no. 61, Shri E. Kirkman has also stated that it is not possible to keep the time and he therefore violates the rule even when his engine is provided with a speedometer. We are unable to accept the suggestion because there is ample difference between the minimum time in which the journey can be performed and the time provided in the working time table for each run. There is thus no justification for entering the loop at more than 10 miles per hour on the plea that it is necessary in order to maintain the time schedule. The evidence is that drivers have not complained and we do not see why, if they had any genuine difficulty, they made no report. We conclude that the drivers do not have any general difficulty in maintaining the time schedules.

123. The second contention is that the drivers would not reach the end of the platform if they enter the loop at a speed of 10 miles per hour. Witness no. 22, Shri H. D. Kerr has reinforced this plea by stating that no driver worth the name will open up the steam again after entering the loop.

124. Witness no. 23, Shri Dhanpat Rai has stated that he would reach the end of the platform by entering the loop at 10 miles per hour and it would not be necessary to open steam again. Driver Sadhu Ram also admitted that he would reach the end of the platform if he entered the loop at 10 miles per hour. We, therefore, see no scope for the argument that by entering the loop at 10 miles per hour, the driver would not reach the end of the platform.

125. The third suggestion is that all drivers habitually hit the loop at more than 10 miles per hour, and therefore, there was nothing wrong or unusual about Shri Sadhu Ram hitting the facing point that day at a speed exceeding the restricted speed. Witness no. 23, Shri Dhanpat Rai stated that he does not enter the loop at a speed exceeding 10. Witness no. 45, Shri Himmat Singh stated that whenever he is on the engine, the drivers observe the restriction of the speed on the loop. Witness no. 55, Shri N. Merrit has stated that he hits the facing point at 10 miles per hour. Witness no. 60, Shri H. Q. Gordon has stated that though he attempts to keep his speed on the loop within 10 miles per hour, he can make no precise guess and found that his estimated speed of 10 miles per hour, was actually 20 miles per hour. On an engine not fitted with a speedometer, there might be some scope for mistake in judging the speed. But we have positive evidence to indicate that the engine of 45 Up was fitted

with a speedometer in working order. The evidence does not bear out the contention that all drivers habitually hit the loop at speeds exceeding 10 miles per hour. There is no justification for violating the speed restriction as regards the speed on the loop and no virtue can be made out of this suggested deliberate disobedience.

Application of Brakes

126. The oral evidence indicates that the brakes were not applied but we need not refer to the statements of witness no. 4, Shri Sham Lal, witness no. 5 Shri Chela Ram, witness no. 7, Shri L. D. Puri, Guard of the Janata, witness no. 28, Shri Surinder Mohan Ashri, witness no. 29, Shri Bachitar Singh, witness no. 30, Shri Ram Saran Dass, witness no. 31, Shri Kuldip Singh Dhaliwal, witness no. 32, Shri Joginder Singh, witness no. 33, Shri Khushal Singh, witness no. 48, Shri Madan Mohan Anand, witness no. 49, Shri Karan Singh, witness no. 53, Shri Hardwari Lal and witness no. 54, Shri Deep Chand. It is stated by these persons that no brakes were applied and they did not feel any sensation of the application of the brakes and had no difficulty in moving about in the compartments. The evidence of Shri L. D. Puri is entitled to some weight as he states that if the brakes had been applied, he would have looked out of the compartment. On the other hand, witness no. 40, Shri Ram Sunder states the brakes were suddenly applied at the facing point. Witness no. 41, Shri Bachan Singh also supports this statement. Witness no. 42, Shri Sadhu Ram states that he did not apply the brakes when he saw the loop home signal down but applied them fully on the facing point. Shri Himmat Singh told the Government Inspector of Railways that when he inspected the controls of the 45 Janata engine, he found the lever in mid gear, the locking notch 'off' and the vacuum brake handle in the 'on' position. The regulator valve handle was in the closed position. Witness no. 34, Shri Ajmer Singh has also stated that the driver did four things:—

- (i) Shut off the steam regulator.
- (ii) Apply the vacuum brakes.
- (iii) Put the reverse lever in the reverse position; and
- (iv) Turn the gear from the fore gear position to the mid gear position in his attempt to put it in the reverse position.

We are told that the steam regulator was shut off at the sighting line. At the time of the accident the driver was apparently trying to put the gear in the reverse position but did not have sufficient time and could move it only to the mid gear position. This gives some indication of the time when the vacuum brake must have been applied. Shri Anthony in his arguments has also urged that Shri Sadhu Ram's reflex actions are probably slower and he may have taken a few seconds to react mentally and may have applied the brakes after passing the facing point. That appears to be the correct position. It appears to us that the necessity of application of the brakes dawned on Shri Sadhu Ram only when he had passed the facing point. He took some time to react mentally and actually applied the brakes somewhere between the facing point and the engine of 2 DÜ. The brakes require some time to take effect as the braking action takes about 20 seconds to build up fully. There was no appreciable difference between the speed on the facing point and the speed at the time of the impact. The Commission

made a test and found that with the regulator shut off at the outer signal with a speed of 30 miles an hour, the speed at the facing point would be 25 miles. Thus the evidence clearly indicates not only that the speed was excessive having regard to the restrictions as to the speed of this train and also on the loop but that the brakes were applied late and did not take full effect before the actual impact.

Conclusions

127. On the evidence before us the assistant station master Shri P. C. Gupta is not proved to have failed to do anything or to have done something which might have contributed to the collision. The evidence clearly indicates that the driver Shri Sadhu Ram disobeyed the signals. He passed both the outer and the home signals at danger. He, further, on his own admission, disobeyed the restriction as to the speed on the loop. His suggestion is that the up loop home signal was lowered for him. Then his speed at the facing point should have been 10 miles an hour as required by the rules. He had no justification for the excessive speed of about 30 miles per hour. He is also proved to have applied the brakes late and thus failed to discharge his general responsibility of keeping his train under control and be able to stop his train short of any obstacle.

128. The learned counsel has urged that it is improbable that Shri Sadhu Ram could have disobeyed the signals which were against him. He has drawn attention to 12 specific cases of accidents over the Southern Railway as published in their Accident Bulletins during the years 1956 and 1957. Out of these, two are cases of premature raising of signals and 10 are cases in which wrong signals were given, two of which resulted in collisions of goods trains in the yard and, eight cases in which collisions were averted. The same bulletins give figures of trains running against signals. In 1956, 21 trains ran against signals. The figure for the first three quarters of 1957 was 16. A statement given to the Commission shows that during the year 1957 on Delhi—Ambala—Kalka Section alone six signals at danger were passed by drivers. We have also been furnished with a table of trains passing signals at danger on the Northern Railway during the years 1954-55, 1955-56, 1956-57 and 1957-58 (eight months). The table is given below:—

Description of signals	In the year				Remarks
	1954-55	1955-56	1956-57	April to Nov. 57	
Outer	5	10	7	4	
Home .. ..	..	1	..	..
Starter	11	10	16	2	
Outer & Home ..	3	1	1	1	
Home & Starter ..	1	..	..	..
Advance Starter ..	..	1	2	1	
Starter & Advance Starter ..	2	..	1	..	
Engineering Signals	..	2	1	..	

It will be noticed that in three cases in 1954-55 and one case in every subsequent period the driver passed both the outer and the home signals at danger. The Railway Administration has also furnished the Commission with a statement of trains passing signals at danger during the three years 1954-55, 1955-56, 1956-57 and 1957-58 (4 months). This statement of particular types of signals passed shows that in 8% cases relating to passenger trains both the outer and the home signals were passed at danger. This would suggest that there are quite a few cases of such disobedience every year on the Indian Railways. We are, therefore, unable to accept the contention of Shri Anthony that the improbability of Shri Sadhu Ram passing the two signals at danger is so great as to make it almost definite that he could not have done so.

129. Fireman Shri Ram Sunder also failed to discharge his duty of keeping a proper look out when not otherwise engaged. In view of our conclusions, his statement that he saw the 2 signals lowered cannot be true. Since he must have seen the signals at danger he should have warned the driver.

Disobedience of other rules

130. Having established the primary responsibility for the accident, the Commission would like to offer some comments on the violation of certain rules and regulations which have come to light in the course of the evidence tendered before it.

131. It has been suggested to us that non-observance of Rule 39(b) brought 2 DU into the station at Mohri earlier than it should have come and even that it is possible that the collision might have been averted if 2 DU had been stopped at the outer signal. We are unable to take this argument seriously. Indeed there would have been no collision if the 2 DU had not been running at all or even if the Janata had been punctual. We cannot take these 'might have beens' seriously. The 2 DU may have left Ambala at the right time or having left Ambala at 3.55 A.M. may not have lost any time at all on the way. The experiments carried out by us demonstrated that 2 DU would have taken 2 minutes and 36 seconds extra if it had been stopped at the down outer signal. It may be that in that case the 2 DU would have been on the loop line at the time of the accident. If it had been detained a little longer, it is even possible that there may have been a head-on collision with both the trains in motion. If conjecture is permitted, it may even be said that if the Janata had taken the full 14 minutes time provided for its passage from Shahabad Markanda to Mohri, the facing point may have been set for the main line in the additional one minute and no accident may have occurred even if driver Shri Sadhu Ram disobeyed the signals. We are convinced that the non-observance of Rule 39(b) and Subsidiary Rule 39/5 was not a contributory cause of the accident.

132. We are informed that under the rules (G.R. No. 143 and Operating Manual Rule 39009(v)) the headlight of 2 DU engine should have been kept on, though dimmed, after it had become stationary. Had the headlight been kept on dimmed, it is possible to urge, the obstruction may have been noticed by Shri Sadhu Ram much earlier. We, however, find, as a matter of fact that though Shri Sadhu Ram states that the loop signal was lowered for him,

he did not apply any brakes till he had passed the facing point. He obviously appears to have made no attempt to reduce the speed even to 10 miles an hour. The only possible explanation can be that he was somehow under the impression that he was running on the main line. But that is in the realm of conjecture and we do not wish to make any conjectures.

133. We cannot be certain that casualties would have been less if the brakes of 2 DU had not been kept 'ON' after it had become stationary. Then there may have been no smashing of the bogies of 2 DU. There is, however, the possibility that some of the rear bogies of 2 DU might have been derailed by the trap point at its rear which had already been locked in the open position by the pointsman. In that case there may have been other casualties due to derailment.

Position of steel coaches

134. Witness no. 45, Shri Himmat Singh, has also expressed the opinion that if HAL bogies had been kept in the rake immediately behind the TLR of 45 Up Janata they would have resisted pressure better and the casualties may have been lower. On the whole, we are inclined to agree with him.

Findings

135. To sum up, we conclude that the Up outer and the Up home signals at Mohri were at danger when the 45 Up Janata Express entered the loop line at 4.16 A.M. on 1-1-58 and that the speed of that train when entering the loop line was in the order of 30 m.p.h.

Shri Sadhu Ram, driver of 45 Up Janata, failed to keep a good look out when approaching Mohri station and did not obey the signals. He also failed to comply with the speed restriction of 10 m.p.h. applicable to the loop line. Driver Shri Sadhu Ram thus contravened General Rule 76(a), Subsidiary Rule 90/1(b) and General Rule 122.

The first fireman of 45 Up Janata Shri Ram Sunder failed to keep a good look out at the time of approaching Mohri station when he was not otherwise engaged. He thus contravened General Rule 122.

This answers the second term of reference to this Commission.

PART IV—RECOMMENDATIONS

Punishments

136. The accident was caused by non-observance of rules. The only remedy is that stricter observance of the rules be enforced. A statement of punishments awarded to drivers disobeying signals during the year 1954-55, 1955-56, 1956-57 and 1957-58 (4 months) has been furnished. We have been driven much against our wish to the conclusion that the punishments are on the lenient side. In the interest of the travelling public whose safety is committed to the care of the railway staff, it is essential that every possible effort be made to see that rules are strictly complied.

137. On 30th June, 1954, the driver of Mela Special No. 7 passed the starter signal at Kurukshetra due to excessive speed and burst point No. 24. The punishment awarded to him was stoppage of privileges for six months. On 25-7-54 the Driver of Dn. BZA Special passed the starter signal at Kinana and burst the point. In this case, even though a part of the responsibility lay with the poor and ineffective brake power, he was awarded 12 months' stoppage of privileges. On 10-8-54 the driver of 748 Dn TG passed the starter signal in the Fursutganj station yard and entered into the sand hump due to his failure to control his engine. He was reduced as a Shunter for 3 months without affecting his seniority and future increments. Similarly on 10-11-54 the driver of 1217 Up Goods passed the starter signal at Milk due to starting without satisfying himself that the starter was on. The engine was derailed but the only punishment given was that the driver's next increment was withheld for 2 months.

138. On 14-3-55 the driver of D62 Dn. passed the starter signal at Khara-war as he could not control his train and burst the up facing point. The increment of the driver was temporarily stopped for six months. On 31-3-55 the driver of 748 Dn TG passed the starter signal at Rae Bareilly and trailed through a point by starting when the signal for another line was lowered. His increment was withheld for six months. On 27-10-55 the driver of 63 Up Express passed the up main starter at Gaipura in the 'on' position. He was only censured. On 13-1-55 the driver of 402 Dn. Goods passed the down outer signal at Chandari and burst the point. He was reduced to a lower post for six months temporarily.

139. On 11-3-56, the driver of 465 Up passed the starter signal at Sampla due to excessive speed and burst the trailing point. His increment was temporarily stopped for one year. On 15-6-56 the driver of 339 Up Passenger passed the up loop starter causing serious damage to the engine and derailling one bogie. His increment was stopped for 2 years.

140. We could give other instances but consider it unnecessary to do so. We have not studied the enquiry reports which resulted in these punishments but the cases mentioned by us are sufficient to justify our impression that punishments are not commensurate with the seriousness of the offence. All attendant circumstances have invariably to be considered in assessing the gravity of the offence in each case but we would like to emphasize that in disobeying signals, a driver has made his contribution to a possible collision and cannot plead for leniency only because none takes place. Leniency in cases of some minor or averted accidents may breed major accidents. We suggest that action be taken to ensure that punishments fit the offence and also that there is some measure of uniformity in punishments awarded. We also believe that punishments to be effective should be awarded as promptly as possible and suggest that if necessary the procedure for the conclusion of the enquiry be made more expeditious. Our remarks are meant to apply to breaches of rules and orders by all staff and not only by any particular section of it. We understand some action in this direction has been taken by the Northern Railway.

Supervision

141. A statement of footplate inspections has been given to us. During the year 1956, Divisional Mechanical Engineer (I) made only 5 footplate inspections during the first five months of the year. He made 21 inspections during the remaining six months. Similarly Divl. Mechanical Engineer (II) made only 4 inspections during the first six months of the year and made 23 inspections during the second half of the year. Assistant Mechanical Engineer (II), though he made 23 footplate inspections during the year 1956 made only one inspection in each of the months of February, May, July August, September and December. We notice that the number of these inspections has risen in the year 1957.

142. We give below a table showing numbers of detailed and night inspections that should have been made during 1957 and the figures of inspections actually made :—

Designation of Officer/Inspector	● Number of Inspections			
	Detailed		Night	
	Annual Quota	Made during 1957	Annual Quota	Made during 1957
1. Divisional Operating Superintendent	4	4	12	7
2. Asstt. Transportation Supdtt. (No. I)	1	..	24	1
3. Do. No. II	5	8	24	13
4. Do. Ambala	4	9	24	18
5. Do. Bhatinda	5	10	24	17
6. Divisional Inspector, Transportation, Delhi	8	5	36	5
7. Traffic Inspector, Delhi	29	32	36	32
8. Do. Ambala	27	20	36	27
9. Do. Meerut	21	12	36	20
10. Do. Bhatinda	27	17	36	13
11. Do. Solan	24	14	36	27
12. Asstt. Operating Supdtt.	1	..	24	1
13. Do. (Goods) .. ..	..	..	..	1

The Commission notices that the officers have not always completed the annual quota of their inspections. We suggest that the number of these inspections be increased if they are inadequate, and they should be more evenly distributed. This recommendation applies to all inspections by supervisory staff.

143. We would go further and suggest that an element of surprise be introduced in these checks by senior officers only, and without taking risks, the officers should check whether rules are being properly followed. For example, the officers may see that though the points are properly set for the trains, thus obviating all possibilities of accident, they should under their own personal supervision either give contradictory signals, get signals to droop or even raise them suddenly in face of a coming train, to see whether the drivers comply with the rules. Similar tests should be worked out for checking the efficiency of the station staff. To ensure the element of surprise, it may be necessary for each the selected station otherwise than by train.

144. We would also suggest that there should be greater follow-through action on circular orders. An instance of a direction about Rule 39(b) having issued in the last days of 1957 has come to our notice. It appears that while circular orders are issued, care is not taken to see that the staff actually get these orders in time, understand their implication and observe the directions given.

145. We cannot but emphasise that the rules must be strictly complied with and every effort made to see that they are carried out in the spirit and the letter. To that end, we are of the opinion that following steps be taken:—

- (1) The rules should be expressed in simple language. They should be so worded that they are easily understood and there is no ambiguity about their meaning. Clarifications should also be issued to remove confusion and doubt where it appears to exist, such as, has come to the Commission's notice in respect of General Rule 39(b).
- (2) We have also been impressed by the requirement that the Rules should be better understood. Strict compliance with the rules is of the utmost importance for the safe conduct of operations and we are unable to completely discard the possibility of some accidents occurring because of an imperfect comprehension of the rules. We therefore suggest that in addition to English, the rules be published in the regional languages.
- (3) It appears to us that it is absolutely essential that the rules be kept under constant review, and difficulties experienced in working them should be taken into consideration and the rules or the procedure amended whenever found necessary.
- (4) It has come to our notice that the Subsidiary Rules framed by the different Zonal Railways are neither reported to the Railway Board, nor necessarily brought to the notice of the other zones. This means that the experience gained by one zone and its reasons for making the changes are not available to the other zones. We are surprised that this should be so. We suggest that Subsidiary Rules framed by any Zonal Railway should invariably be brought to the notice of the other zones and the Railway Board, accompanied by a clear statement of the reasons for introducing, deleting or modifying the rule. This would not only make the experience of one Zonal Railway available to the others, but would tend to secure uniformity in the Subsidiary Rules.

146. We make a few further recommendations designed to increase the safety factor in view of the increasing traffic trend. We would, however, like to emphasise that the provision of better facilities is not meant to curtail the responsibility of the driver and the station staff, who must in all cases, ~~remain~~ alert, comply with the rules and obey all signals. We make the following suggestions :—

- (a) Where justified by the increase in traffic we suggest the adoption of Standard III signalling.
- (b) In our opinion the 'trap' should not be considered as sufficient substitute for "adequate" distance and removal of traps will not improve matters. We recommend that snag-dead-ends or sand-humps be provided on the loop lines or the loop lines lengthened, wherever justified, to secure simultaneous reception and despatch of trains. This will also enable trailing points being set for reception of a train coming from the opposite direction in case the first train is received on the loop line.
- (c) Some provision be made to improve the visibility of the sighting line, particularly in rainy and misty weather. We suggest the provision of a board with yellow reflecting beads or some other effective device. We understood that the Railway Board have already directed on the point.

We do not think the provision of fixed warners to outer signals will help, though it has been suggested to us that a red signal is visible from a greater distance than a green signal, and provision of fixed warners would help drivers.

- (d) In view of the cost involved, we do not suggest the provision of any device to give the drivers automatic warning of adverse signals, but it would be desirable to pursue the research at present being done.
- (e) We also suggest that practical experiments be made to find out the effect of weather on braking distances and if it is found that braking capacity is appreciably affected by the weather, then this fact be pointedly brought to the notice of the drivers.

147. We have to make a few minor suggestions also, designed mainly to reduce casualties in case an accident does occur. Some of them may also avoid the occurrence of the accident. We would enumerate them as under :—

- (a) A luggage van should be put next to the engine in every passenger train. We are informed that this was previously recommended by the Government Inspectorate of Railways and is probably being implemented.
- (b) Where possible, anti-telescopic steel coaches be put in the rake next to the luggage van immediately after the engine.
- (c) The outer signal be provided with double wire and pulley arrangement to reduce chances of contradictory signals and drooping of outer signals by unauthorised pulling of wires.

We understand that provision exists for providing this arrangement on the Delhi-Ambala Section.

- (d) Steps be taken, as far as possible, to secure visibility of the signals from the station signal lever frames. In our experiments we found that the signals at Mohri station were not visible from the level frame, but could be seen only after walking a few paces.
- (e) All passenger train engines be provided with speedometers. It is true that some of old engines have been provided with speedometers and new imported engines have speedometers. We suggest that steps be taken to manufacture speedometers within the country.
- (f) The Administration should consider the advisability of all drivers and guards who require glasses, both for short and long distance, having bi-focal glasses.
- (g) The head light of all stationary trains should be kept on but in the dimmed position. The rule on the point should be strictly complied with.
- (h) The brakes of all stationary passenger trains should be taken off with the ejector in the running position.
- (i) Care should be taken to see that signal glasses and lamps are maintained in proper condition. We feel that there are reports of cases of signals being dim.

148. There are certain other matters which have come to our notice though they are not covered by the specific terms of reference of this Commission and we would like to bring those facts to the notice of the Government for their consideration :—

- (i) We find that the number of blankets, sheets and lanterns provided in the relief trains are insufficient to meet the requirements of a serious accident. We would like the authorities to review the existing provision as regards medicines, particularly Morphine, Brandy and the bandages provided.
- (ii) We are not satisfied with the number of cranes and their capacity as provided by the Administration and their location.

149. We are informed that some of the matters enumerated by us are already receiving the attention of some of the Railway Administrations but we have made our recommendations in view of the possibility that they may not have been considered by other Administrations.

150. In the case of this accident, the relief measures were taken with commendable promptitude. The relief trains left Ambala and Delhi without avoidable delay and valuable assistance was rendered by military and civil authorities including private medical practitioners.

We place on record our thanks and appreciation of the excellent work done by the Secretary and the staff attached to the Commission. We also thank the Railway Administration for the assistance given to us in the whole course of the enquiry. We have experienced complete frankness on the part of the Railway Administration and they have been willing to give us every information required and to render every assistance.

PART V—SUMMARY ON FINDINGS AND RECOMMENDATIONS

151. Summing up briefly, we state our conclusions as follows :—

(1) The causes of the accident at Mohri were :—

(a) Disobedience of signals; and

(b) Excessive speed of Janata Express when entering the loop line.

(2) We hold that driver Shri Sadhu Ram disobeyed signals and was travelling at excessive speed and is, therefore, responsible for the accident.

(3) The first fireman, Shri Ram Sundar also failed to keep a look-out for signals when not otherwise engaged and to that extent we hold him responsible.

(4) Strict compliance with the rules be secured by imposing fit punishments for disobedience.

(5) Steps be taken to ensure some degree of uniformity with regard to punishments imposed for similar offences.

(6) Steps be taken to make the procedure of departmental enquiries more expeditious.

(7) The number of inspections made by supervisory officers be increased, if necessary, and they be more evenly distributed throughout the year.

(8) Surprise inspections at stations be made by superior officers to check that rules are complied with both by the station and the train running staff.

(9) Tests as to knowledge of rules be prescribed for the staff connected with operations of trains and refresher courses be prescribed where not provided.

(10) Issue of circular orders should be followed up with action to ensure that they are properly understood and fully implemented.

(11) Rules be revised and expressed in simple language.

(12) Rules be published in the regional languages in addition to English.

(13) Rules should be kept under constant review in the light of experience.

(14) Subsidiary Rules made by one Railway Administration be circulated to the other Railways and submitted to the Railway Board.

(15) Standard III signalling be introduced where justified by increased traffic.

(16) Snag-dead ends or sand-humps be provided or loops be lengthened wherever justified for simultaneous reception and despatch of trains.

(17) A board with yellow reflecting beads or other suitable device be fixed near the sighting line.

(18) Experiments be carried out to find out the actual effect of weather conditions on braking distances.

(19) A luggage van should always be put next to the engine in every passenger train (probably being implemented).

(20) Where possible anti-telescopic steel coaches be put in the rake next to this luggage van.

(21) Double wire and pulley arrangement be provided for outer signals. This work is in hand on the Delhi-Ambala Section.

(22) As far as possible, visibility of signals from the station signal lever frame be ensured.

(23) Local manufacture of speedometers be undertaken and the programme of providing speedometers on all passenger train engines be accelerated.

(24) The advisability of providing bi-focal glasses for all drivers and guards needing them be examined.

(25) The rule as to the dimming of the engine head-light be strictly enforced.

(26) The rule as to the position of brakes on stationary passenger trains be strictly enforced.

(27) Steps be taken to see that signal glasses and lamps are maintained in proper condition.

(28) A review be made of the equipment of the relief trains. The number of blankets, sheets and lanterns be increased and the position as regards medicines and bandages be examined.

(29) The position as regards the number, location and capacity of cranes be examined in detail.

It is probable that some of the matters enumerated above are already receiving the attention of the Railway Administration.

(Sd.) FEROZE GANDHI

27-2-58

Member

(Sd.) J.N. NANDA

Member

(Sd.) B.N. NIGAM

26-2-1958

Chairman

Commission of Enquiry

Mohri Accident

[No. 58-TT/V/1/1]

P. C. MATHEW

Secretary, Railway Board

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